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**UserID:** SAhmed2

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**Date:** 05/06/2003

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	Type	L #	Hits	Search Text	DBs	Tim Stamp
1	BRS	L1	10	(etch\$3 same (iron near nickel or "Fe-Ni")) same (etch\$3 near5 stop\$3) and @pd<19980914	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 11:15
2	IS&R	L2	1	("4288283").PN.	USPAT; US-PGPU B	2003/05/06 11:40
3	BRS	L3	41	((permalloy or "Fe-Ni") same etch\$3) same (etch\$3 near stop\$3)	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 11:43
4	BRS	L4	12	3 and resistor	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 11:43
5	BRS	L5	10	4 and @pd<19980914	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 11:53
6	BRS	L6	105880	(metal or permalloy or nickel near alloy or "Fe-Ni") same etch\$3	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 12:06
7	BRS	L7	918	6 same ((etch\$3 near stop\$3) same (titanium or "Ti" or platinum or "Pt" or nickel or "Ni"))	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 12:10
8	BRS	L8	102	7 and resistor	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 12:10
9	BRS	L9	43	8 and @pd<19980914	USPAT; US-PGPU B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 12:12

	Comments	Error Definition	Errors
1			0
2			0
3			0
4			0
5			0
6			0
7			0
8			0
9			0

	Type	L #	Hits	Search Text	DBs	Time Stamp
10	BRS	L10	7	9 and (back near2 etch\$3)	USPAT; US-PGPU; B; EPO; JPO; DERWEN T; IBM_TDB	2003/05/06 12:13

	Comm nts	Error Definition	Errors
10			0

d his

(FILE 'HOME' ENTERED AT 10:41:42 ON 06 MAY 2003)

FILE 'CAPLUS' ENTERED AT 10:41:58 ON 06 MAY 2003

FILE 'CAPLUS, INSPEC, JICST-EPLUS' ENTERED AT 10:42:04 ON 06 MAY 2003

FILE 'REGISTRY' ENTERED AT 10:42:23 ON 06 MAY 2003

E PERMALLOY

L1 66 S E3

FILE 'CAPLUS, INSPEC, JICST-EPLUS' ENTERED AT 10:43:41 ON 06 MAY 2003

L2 8137 S L1

L3 245660 S L1 OR PERMALLOY OR (NICKEL ALLOY) OR (IRON ALLOY) OR FE-NI OR

L4 171469 S L3 AND (TITANIUM OR PLATINUM OR NICKEL OR TI OR PT OR NI)

L5 8 S L4 AND ((ETCH? STOP?) OR (ETCH-STOP?) OR ETCH?-STOP?)

L6 3741 S (TITANIUM OR PLATINUM OR NICKEL OR TI OR PT OR NI) AND (ETCH?

L7 9 S L6 AND (BACK? ETCH?)

L8 218 S L6 AND WET

L9 218 S L8 AND ETCH?

L10 4 S L9 AND RESISTOR

L11 2121 S L6 AND (INSULAT? OR DIELECTRIC? OR OXIDE OR NITRIDE)

L12 5 S L11 AND L2

L13 62 S L11 AND L3

L14 60 DUPLICATE REMOVE L13 (2 DUPLICATES REMOVED)

L14 ANSWER 1 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:260830 CAPLUS  
DOCUMENT NUMBER: 138:247034  
TITLE: Method of manufacture of printed circuit board with  
excellent mechanical strength and low manufacturing  
cost  
INVENTOR(S): Kamiyama, Koichi; Yoshimizu, Hisanori; Michiwaki,  
Shigeru  
PATENT ASSIGNEE(S): Japan  
SOURCE: U.S. Pat. Appl. Publ., 8 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003063443	A1	20030403	US 2002-238609	20020911
JP 2003110214	A2	20030411	JP 2001-304908	20011001
PRIORITY APPLN. INFO.:			JP 2001-304908 A	20011001

AB A manufg. method of a printed circuit board is composed of a first process of forming a pattern of lower electrode at a specific portion on a substrate in which a capacitor element is formed, a second process of forming a capacitor **insulative** layer that is constituted by a paste material having high permittivity **selectively** at a position that corresponds to the lower electrode, a third process of forming an interlayer **insulative** film having low permittivity all over the entire surface of the substrate including the capacitor **insulative** layer, a fourth process of exposing the capacitor **insulative** layer by grinding the surface of the interlayer **insulative** film so as to be flat, and a fifth process of forming a capacitor element by forming a pattern of upper electrode on the surface of the capacitor **insulative** layer. Accordingly, the printed circuit board is excellent in mech. strength, low in manufg. cost and high in reliability and capacitance accuracy.

L14 ANSWER 2 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:42716 CAPLUS  
DOCUMENT NUMBER: 138:98318  
TITLE: Light-emitting diode array  
INVENTOR(S): Yukimoto, Tomihisa  
PATENT ASSIGNEE(S): Japan  
SOURCE: U.S. Pat. Appl. Publ., 9 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003010989	A1	20030116	US 2002-185258	20020628
JP 2003031840	A2	20030131	JP 2001-210464	20010711
PRIORITY APPLN. INFO.:			JP 2001-210464 A	20010711

AB A high-power light-emitting diode array is described comprising an epitaxial layer prep'd. by accumulating many crystal layers formed on a substrate, many light-emitting diode sections, which were **insulated** and divided, wherein each surface of light-emitting part of the light-emitting diode sections is covered with protective films, wherein a total thickness of the protective films covering each surface of light-emitting part of the many light-emitting diode sections is <1 .mu.. Use of the light-emitting diode array in printer is indicated.

L14 ANSWER 3 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:274636 CAPLUS  
DOCUMENT NUMBER: 138:279892

TITLE: Fabrication of multilayer printed circuit boards,  
both-sides-masked laminates therefor, and manufacture  
thereof

INVENTOR(S): Mine, Yoji

PATENT ASSIGNEE(S): Hitachi Metals, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003103694	A2	20030409	JP 2001-300537	20010928
PRIORITY APPLN. INFO.:			JP 2001-300537	20010928

AB Core metal (or alloy) sheets clad with Cu (alloy) layers on both sides are subjected to photolithog. on both sides to have patterned resist layers, coated with metals or alloys of different **etchability** from that of the clads, and then stripped of the resists to give title laminates which promise extra designing freedom of multilayer printed circuit boards. To fabricate the circuit boards, the laminates are protected on one side (side A), **etched** of the clad layers on the other side (side B) **selectively, etched** of the core sheets on side B **selectively**, deprotected on side A, coated with **dielecs.** on side B to bury the formed microstructure, and **etched** of clad layers on side A **selectively**.

L14 ANSWER 4 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:888979 CAPLUS

DOCUMENT NUMBER: 137:373522

TITLE: Electroless plating method and apparatus for forming a  
**Ni-B** protective film on the surface of  
interconnects of an electronic device

INVENTOR(S): Inoue, Hiroaki; Kimura, Norio; Nakamura, Kenji;  
Matsumoto, Moriji

PATENT ASSIGNEE(S): Ebara Corporation, Japan

SOURCE: PCT Int. Appl., 80 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002092878	A2	20021121	WO 2002-JP4522	20020509
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2003027249	A2	20030129	JP 2001-150080	20010518
PRIORITY APPLN. INFO.:			JP 2001-140606	A 20010510
			JP 2001-150080	A 20010518

AB There are provided an electroless plating method and device which can form a plated film having an improved uniformity of film thickness with an enhanced **selectivity**, while preventing the formation of fine pores in the plated film. The electroless plating method comprises (a) polishing copper substrate, (b) bringing a substrate into contact with an electroless plating soln. to form a plated film on the surface of the substrate, (c) scrubbing the surface of the plated film formed or being formed on the surface of the substrate, and (d) repeating the plating and scrubbing. The scrubbing the surface of the plated film is carried out by crashing particles mixed in a fluid against the plated surface. An electroless plating app. comprises a substrate holder for bringing it into contact with the plating soln., a swingable robotic arm, means for scrubbing the surface of the substrate, and a moving mechanism for relatively moving a scrubbing member and the substrate holder.



L14 ANSWER 5 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:575443 CAPLUS

DOCUMENT NUMBER: 137:128349

TITLE: Acidic **etching** for removal of **oxide** films and coatings from a metal substrate

INVENTOR(S): Kool, Lawrence Bernard; Ruud, James Anthony

PATENT ASSIGNEE(S): General Electric Company, USA

SOURCE: U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002100493	A1	20020801	US 2001-771186	20010129
PRIORITY APPLN. INFO.:			US 2001-771186	20010129

AB **Etching** or pickling with aq. fluoro acid soln. is applied for **selective** removal of **oxide** films or coating from the surface of metal, alloy, or polymer substrate. The aq. bath contains the fluoro acids of Si, Ge, **Ti**, Zr, Al, or Ga, esp. H<sub>2</sub>SiF<sub>6</sub> or H<sub>2</sub>ZrF<sub>6</sub>. The acidic bath optionally includes an addnl. acid selected from H<sub>3</sub>PO<sub>4</sub>, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, HCl, or HF. The process is suitable for removal of worn or damaged protective **oxide** coating on superalloy substrate, esp. for repair coating on gas-turbine parts.

L14 ANSWER 6 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:450314 CAPLUS

DOCUMENT NUMBER: 137:26896

TITLE: Method for forming conductive or magnetic pattern in semiconductor or other electronic device.

INVENTOR(S): Kuo, Yue

PATENT ASSIGNEE(S): Texas A & M University System, USA

SOURCE: U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002072228	A1	20020613	US 2000-736043	20001212
PRIORITY APPLN. INFO.:			US 1999-171259P P	19991215

AB A method for forming conductive or magnetic pattern in semiconductor or other electronic device includes patterning a mask layer outwardly from a conductive layer of the semiconductor device. The patterning defines portions of the conductive layer where vias through the conductive layer are desired. The method also includes exposing the semiconductor device to a plasma. The plasma converts the unmasked portions of the conductive layer into a compd. The method further includes exposing the semiconductor device to a treatment process to **selectively** remove the compd. The mask layer may be removed either before or after removal of the compd., thereby providing the unmasked conductive layer in the desired pattern.

L14 ANSWER 7 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:241315 CAPLUS

DOCUMENT NUMBER: 136:271746

TITLE: Using a carbon film as an **etch** hard mask for hard-to-**etch** materials in electronic device fabrication

INVENTOR(S): Xing, Guoqiang; Hsu, Wei-yung; Jin, Changming

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 7 pp.

CODEN: SXXCO

DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002037637	A1	20020328	US 2001-921119	20010802

PRIORITY APPLN. INFO.: US 2000-224155P P 20000810

AB A C hard mask for **etching** hard-to-**etch** materials such as **Pt**, **Ir**, **Ru**, **IrO<sub>2</sub>**, **RuO<sub>2</sub>**, **BST**, **PZT**, **SBT**, **FeNi**, and **Fe-Ni-Co** and other used in **DRAMs**, **FeRAMs**, and magnetic storage devices. Chem. assisted phys. sputter **etching** using **Ar** and limited or no **O** may be used to **etch** the hard-to-**etch** materials with high **selectivity** to the **C** hard mask.

L14 ANSWER 8 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:808489 CAPLUS  
DOCUMENT NUMBER: 137:319464  
TITLE: Spin valve device with improved exchange layer defined track width and method of fabrication  
INVENTOR(S): Knapp, Kenneth E.; Barr, Ronald A.  
PATENT ASSIGNEE(S): Read-Rite Corporation, USA  
SOURCE: U.S., 8 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6469877	B1	20021022	US 1999-335156	19990615

PRIORITY APPLN. INFO.: US 1999-335156 19990615

AB The present invention provides an exchange break to define the track width of a read head by **selectively** isolating an exchange coupling layer from an underlying ferromagnetic layer. In the preferred embodiment, the exchange break is provided over a portion of the free layer of a spin valve device so that it inhibits exchange coupling between an overlying portion of the exchange coupling layer and the underlying free layer to define an active region. It is preferred to form the exchange break of an elec. **insulating** material, to inhibit current shunting through the exchange break, and of a material that easily **etches**, to minimize inadvertent **etching** of the underlying free layer and to ensure complete removal of exchange break material when forming the exchange break from an exchange break layer. A reentrant profile photoresist structure may be used to define the exchange break and to define the exchange coupling layer. Drift portions of the exchange coupling layer, which typically form under the overhang of the photoresist and blur delineation of the active region, are sepd. from the underlying free layer by the exchange break, so that variations in thickness and in shifted material compn. do not blur active region delineation. Because the width of the active region is defined by the exchange break, the present invention decouples the track width of the device from the geometry of the exchange coupling layer.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 9 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:570632 CAPLUS  
DOCUMENT NUMBER: 137:133824  
TITLE: Three-stage wet **etching** process for a patterned layers of magnetic random-access memory  
INVENTOR(S): O'Sullivan, Eugene John; Schrott, Alejandro Gabriel  
PATENT ASSIGNEE(S): International Business Machines Corporation, USA  
SOURCE: U.S., 8 pp.

CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6426012	B1	20020730	US 2000-644989	20000824
PRIORITY APPLN. INFO.:			US 2000-644989	20000824

AB The magnetic-memory structure includes a bottom magnetic film layer, a top magnetic film layer, and the intermediate tunnel barrier layer, and is processed by 3-stage **etching** for a **selective** pattern in exposing the magnetic film layer. The 1st **etching** step **selectively** removes surface **oxide** that may be present in the top passivating layer, the 2nd-stage **etching** **selectively** removes portions of the passivating layer, and the 3rd **etching** step **selectively** removes a portion of the exposed top magnetic film layer. The magnetic films are preferably **Ni-Fe** or similar alloys <150 .ANG. thick, the passivating top layer is preferably **Ti**, **Ta**, **TiN**, or **TaN**, and the tunnel barrier layer is **Al2O3**. The aq. **etching** soln. typically includes dicarboxylic acid with a suitable corrosion inhibitor.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 10 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:387660 CAPLUS  
DOCUMENT NUMBER: 136:394724  
TITLE: Planarized side by side design of an inductive writer and single metallic magnetoresistive reader in thin film magnetic tape head  
INVENTOR(S): Chen, Tsung Y.  
PATENT ASSIGNEE(S): International Business Machines Corporation, USA  
SOURCE: U.S., 10 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6392840	B1	20020521	US 1997-986491	19971208
PRIORITY APPLN. INFO.:			US 1997-986491	19971208

AB In accordance with the present invention, an interleaved bi-directional magnetic tape head is provided in which the read element, write element, and servo element are formed on a common substrate. Each element has a contact pad area elec. assocd. with it, with each contact pad area located in a plane common to all contact pad areas. That is, the contact pad areas are planarized to each other. As a result of such planarization, 2 Au conduction layers, required in the prior art, are reduced to 1 layer. Further, the total no. of mask layers is 2 less than the prior art, with a concomitant redn. in device fabrication time. Addnl., the unit cell size is reduced by .apprx.1/3.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 11 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:95611 CAPLUS  
DOCUMENT NUMBER: 136:154727  
TITLE: Manufacture of laminate foil using aluminum or aluminum alloy interlayer  
INVENTOR(S): Mine, Yoji; Takashima, Hiroshi; Yano, Kentaro; Sato, Koji  
PATENT ASSIGNEE(S): Hitachi Metals, Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JXXXXF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002036423	A2	20020205	JP 2000-231102	20000731
PRIORITY APPLN. INFO.:			JP 2000-231102	20000731

AB The method comprises vapor depositing Al or Al alloy on the joining surface of one or both metal foils to form an interlayer having a thickness of 0.1-2.0  $\mu\text{m}$  and roll pressing the metal foils to obtain a laminated foil wherein the **oxide** layer formed on the interlayer side is  $\leq 0.1 \mu\text{m}$ . The oxidn. of Al at the joining interface with the metal foil is inhibited to enhance the elec. cond. in the lamination direction, and the laminated foil has superior **selectivity** in **etching**. One or both metal foils are Cu foil or **Fe-Ni** alloy foil. The method is used for manuf. of lead frame, e.g., Cu/Al42 alloy.

L14 ANSWER 12 OF 60 JICST-EPlus COPYRIGHT 2003 JST

ACCESSION NUMBER: 1020795027 JICST-EPlus  
TITLE: Micromachining of noble metal and magnetic metal thin films by RIE.  
AUTHOR: ABE T; HONG Y G; SHINODA K; KOBAYASHI N; YANO T; ESASHI M  
CORPORATE SOURCE: Tohoku Univ., Sendai, Jpn  
SOURCE: Tech Dig Sens Symp, (2002) vol. 19th, pp. 337-340. Journal Code: X0768A (Fig. 8, Ref. 2)  
PUB. COUNTRY: Japan  
DOCUMENT TYPE: Conference; Article  
LANGUAGE: English  
STATUS: New

L14 ANSWER 13 OF 60 INSPEC COPYRIGHT 2003 IEE

ACCESSION NUMBER: 2002:7249419 INSPEC  
DOCUMENT NUMBER: A2002-11-7570C-023; B2002-06-3110M-003  
TITLE: Effect of milling depth of the junction pattern on magnetic properties and yields in magnetic tunnel junctions.  
AUTHOR: Fukumoto, Y.; Kamiyo, A. (Silicon Syst. Res. Labs., NEC Corp., Kanagawa, Japan)  
SOURCE: Japanese Journal of Applied Physics, Part 2 (Letters) (15 Feb. 2002) vol.41, no.2B, p.L183-5. 9 refs.  
Published by: Japan Soc. Appl. Phys  
CODEN: JAPLDB ISSN: 0021-4922  
SICI: 0021-4922(20020215)41:2BL;1183:EMDJ;1-H  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: Japan  
LANGUAGE: English

AB We fabricated magnetic tunnel junctions of Ta (3nm)/Ni81Fe19(2)/Fe50Mn50(10)/Co90Fe10(6)/Al(2.2)-**oxide**/Ni81Fe19(5)/Ta(5) with two different structures, the "just-**etched** junction" and the "over-**etched** junction", using a secondary ion mass spectroscopy apparatus during the milling process of a junction pattern: the milling was **stopped** at the Al-**oxide** barrier layer in the former case and at either the CoFe or the FeMn layers in the latter. For the "over-**etched** junction", both the demagnetization field of the pinned layer and magnetostatic coupling between the pinned and free layers increased with increasing milling depth of the junction pattern. The yield for a sampling of 48 junctions was much higher in the case of the "just-**etched** junction" than in that of the "over-**etched** junction".

L14 ANSWER 14 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2001:904876 CAPLUS

DOCUMENT NUMBER: 136:46755  
 TITLE: Simplified method of making **etching** masks  
 which are plasma resistant and usable with hard to  
**etch** materials  
 INVENTOR(S): Maloney, David J.; Lee, Wai M.; Roman, Paul J., Jr.;  
 Fury, Michael A.; Hill, Ross H.  
 PATENT ASSIGNEE(S): EKC Technology, Inc., USA  
 SOURCE: PCT Int. Appl., 89 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001095690	A1	20011213	WO 2001-US18413	20010606
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002037481	A1	20020328	US 2001-874330	20010606
US 2002076495	A1	20020620	US 2001-875115	20010606
WO 2002098580	A1	20021212	WO 2002-US17588	20020604
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.:			US 2000-209947P	P 20000606
			US 2001-874330	A 20010606

AB The present invention involves fabrication of a hard mask. An embodiment involves the conversion of a precursor into a top-surface imaging layer during a direct patterning step. Another embodiment of the present invention is a method of forming an **etched** pattern in a substrate. A further embodiment of the present invention is a method of forming an implanted region in a substrate. Preferred precursors are formed from a metal complex comprising at least one ligand selected from the group consisting of acac, carboxylato, alkoxy, azide, carbonyl, nitrate, amine, halide, nitro, and mixts. thereof and at least one metal selected from the group consisting of Li, Al, Si, **Ti**, V, Cr, Mn, **Fe**, **Ni**, Co, Cu, Zn, Sr, Y, Zr, Nb, Mo, Ru, Rh, Pd, Ag, In, Sn, Ba, La, Pr, Sm, Eu, Hf, Ta, W, Re, Os, Ir, **Pt**, Au, Pb, Th, U, Sb, As, Ce, Mg, and mixts. thereof.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 15 OF 60 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:718974 CAPLUS  
 DOCUMENT NUMBER: 135:250763  
 TITLE: Method of manufacturing a combination type thin film  
 magnetic head  
 INVENTOR(S): Sasaki, Yoshitaka  
 PATENT ASSIGNEE(S): Tdk Corporation, Japan  
 SOURCE: U.S., 20 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6296776	B1	20011002	US 1998-124998	19980730

PRIORITY APPLN. INFO.: JP 1997-359426 A 19971226

AB On a surface of a substrate made of AlTiC, there is formed a mask made of metal such as **permalloy**, Cu, Ni and Ni-B or compds. of these metals and having an opening at a position corresponding to a recessed portion to be formed, and a reactive ion **etching** is performed to form a recessed portion while the metal or metal compd. layer is used as a mask. In order to form the metal or metal compd. layer, a photoresist layer is **selectively** formed by the photolithog. at a position corresponding to the recessed portion to be formed later, and the metal or metal compd. layer is deposited by the plating method. By means of the reactive ion **etching**, it is possible to form the deep recessed portion having a depth .gtoreq.5 .mu.m accurately and a smoothness of the inner wall of the recessed portion can be improved.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 16 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2001:312384 CAPLUS  
DOCUMENT NUMBER: 134:319537  
TITLE: Method of cleaving a semiconductor wafer including implanting and annealing resulting in exfoliation  
INVENTOR(S): Simpson, Todd William; Mitchell, Ian Vaughan; Este, Grantley Oliver; Shepherd, Frank Reginald  
PATENT ASSIGNEE(S): Nortel Networks Limited, Can.  
SOURCE: U.S., 12 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6225193	B1	20010501	US 1999-377054	19990819

PRIORITY APPLN. INFO.: CA 1998-2246087 A 19980828

AB A method of cleaving a semiconductor wafer comprising a deep ion implantation induced **selective** area of exfoliation. The method includes steps of **selectively** masking the material with a mask having edges parallel to natural cleavage planes of the semiconductor material, implanting unmasked regions of the material with light ions of H or He, and annealing to cause exfoliation of the material from the implanted regions. As a result of exfoliation, the patterned structure remaining on the wafer and pieces of the exfoliated material have high quality sidewall-facets which provides cleaved facets along the cleavage planes of the material. A method of manufg. optoelectronic devices and semiconductor laser devices is provided.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 17 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2000:658468 CAPLUS  
DOCUMENT NUMBER: 133:231504  
TITLE: Optimized trench/via profile for damascene filling in integrated-circuit fabrication  
INVENTOR(S): Lukanc, Todd P.; Wang, Fei; Avanzino, Steven C.  
PATENT ASSIGNEE(S): Advanced Micro Devices, Inc., USA  
SOURCE: U.S., 13 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6121149	A	20000919	US 1999-296554	19990422
PRIORITY APPLN. INFO.:			US 1999-296554	19990422

AB The reliability of in-laid metalization patterns, e.g., of Cu or a Cu-based alloy is significantly enhanced by voidlessly filling recesses formed in the **dielec.** layer surface by an electroplating process. Embodiments of the present invention include preventing pinching-off of the recess opening due to formation of overhanging nucleation/seed layer deposits at the corners of the opening as a result of locally increased rates of deposition. Embodiments of the present invention also include providing a dual-layered **dielec.** layer comprising **dielec.** materials having different lateral **etching** rates when subjected to a preselected **etching** process, for **selectively** tapering the width of the recess mouth opening to provide a wider opening at the substrate surface, which tapered width profile effectively prevents formation of overhanging deposits, which overhanging deposits can result in occlusion and void formation during electroplating to fill the recesses.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 18 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:635213 CAPLUS

DOCUMENT NUMBER: 133:201885

TITLE: Optimized trench/via profile for damascene filling in metalization for semiconductor device interconnect fabrication

INVENTOR(S): Lukanc, Todd P.; Wang, Fei; Avanzino, Steven C.

PATENT ASSIGNEE(S): Advanced Micro Devices, Inc., USA

SOURCE: U.S., 14 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6117782	A	20000912	US 1999-296556	19990422
PRIORITY APPLN. INFO.:			US 1999-296556	19990422

AB In-laid metalization patterns, e.g., of Cu or Cu alloy, are formed in the surface of a **dielec.** layer with significantly improved reliability by voidlessly filling recesses formed in the **dielec.** layer surface by electroplating. Embodiments include preventing pinching-off of the recess opening due overhanging nucleation/seed layer deposits at the corners of the opening as a result of localized increased rates of deposition. Embodiments also include providing a dual-layered **dielec.** layer comprising different **dielec.** materials and performing a 1st, isotropic **etching** process of the upper (sacrificial) lamina of the **dielec.** layer for **selectively** tapering the width of the recess mouth opening to provide a wider opening at the substrate surface, followed by a 2nd, anisotropic **etching** process for extending the recess at a substantially const. width for a predetd. depth into the lower lamina of the **dielec.** layer. The tapered width profile of the recess effectively prevents formation of overhanging deposits thereat which can result in occlusion and void formation during electroplating for filling the recesses. After electroplating, the recess-filled, plated surface is subjected to planarization processing, as by CMP, wherein the entire thickness of the 2nd, upper lamina of the **dielec.** layer is removed.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 19 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:639162 CAPLUS

DOCUMENT NUMBER: 133:216547

TITLE: Optimized trench/via profile for damascene processing  
in integrated-circuit fabrication

INVENTOR(S): Lukanc, Todd P.; Wang, Fei; Avanzino, Steven C.

PATENT ASSIGNEE(S): Advanced Micro Devices, Inc., USA

SOURCE: U.S., 13 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6117781	A	20000912	US 1999-296553	19990422

PRIORITY APPLN. INFO.: US 1999-296553 19990422

AB The reliability of in-laid metalization patterns, e.g., of Cu or Cu alloy, is significantly enhanced by voidlessly filling recesses in a substrate by an electroplating process, wherein pinching-off of the recess opening due to earlier formation of overhanging nucleation/seed layer deposits at the corners of the opening as a result of increased rates of deposition thereat is prevented. Embodiments include **selectively** tapering the width of the recess mouth opening to provide a wider opening at the substrate surface by a directed beam **etching** or ablation process while rotating the substrate, which tapered width profile effectively prevents formation of overhanging deposits thereat which can result in occlusion and void formation during filling of the recesses by electroplating.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 20 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:589977 CAPLUS

DOCUMENT NUMBER: 133:171090

TITLE: Manufacture of high-planarity high-density in-laid  
metalization patterns by damascene-chemical-mechanical-  
polishing processing in semiconductor device  
fabrication

INVENTOR(S): Erb, Darrell M.

PATENT ASSIGNEE(S): Advanced Micro Devices, Inc., USA

SOURCE: U.S., 10 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6107186	A	20000822	US 1999-238051	19990127

PRIORITY APPLN. INFO.: US 1999-238051 19990127

AB Erosion of high d. metalization areas assocd. with conventional damascene-chem.-mech.-polishing (damascene-CMP) processing is avoided and greater planarity is achieved by **selectively** increasing the metal overburden layer thickness at high-d. metalization regions. Embodiments include initially filling recesses formed in the substrate surface with a metal forming a blanket or overburden layer of the metal thereon. Regions of the blanket or overburden layer overlying regions of high d. metalization are **selectively** electroplated to a greater thickness. The surface is then planarized by CMP, with the **selectively** increased thickness areas of the overburden layer compensating for greater erosion rates during CMP, thereby resulting in greater planarity of the polished surface.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS



L14 ANSWER 21 OF 60 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2000:112995 CAPLUS  
 DOCUMENT NUMBER: 132:145695  
 TITLE: Process for patterning magnetic films  
 INVENTOR(S): Pendharkar, Sandeep; Resnick, Douglas J.  
 PATENT ASSIGNEE(S): Motorola, Inc., USA  
 SOURCE: U.S., 6 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6024885	A	20000215	US 1997-986764	19971208
PRIORITY APPLN. INFO.:			US 1997-986764	19971208

AB A process of patterning magnetic multilayer films including the steps of successively depositing a plurality of magnetic multilayer films on a supporting substrate, **selectively** removing portions of the plurality of magnetic multilayer films using a reactive plasma **etch** including chlorine gas, and passivating in situ, or an adjacent evacuated chamber, remaining portions of the plurality of magnetic multilayer films, i.e. the memory elements, in a post-**etch** fluorinated plasma.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 22 OF 60 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:764557 CAPLUS  
 DOCUMENT NUMBER: 135:281535  
 TITLE: Method for simplifying the manufacturing of contacts to semiconductor junctions  
 INVENTOR(S): Gromov, D. G.; Mochalov, A. I.; Pugachevich, V. P.; Sulimin, A. D.; Sulimina, M. A.; Gornev, E. S.; Evdokimov, V. L.; Prosij, A. D.  
 PATENT ASSIGNEE(S): Aktsionernoe Obschestvo Otkrytogo Tipa "NIIME i Zavod "Mikron", Russia; Moskovskii Gosudarstvennyi Institut Elektronnoi Tekhniki  
 SOURCE: Russ., No pp. given  
 CODEN: RUXXE7  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Russian  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2152108	C1	20000627	RU 1998-115928	19980820
PRIORITY APPLN. INFO.:			RU 1998-115928	19980820

AB Manufg. rectifying and resistance contacts to shallow p-n junctions and heterojunctions is claimed. The method involves generation of active regions and contact windows in **dielec.** layer, which masks surface of Si substrate. Goal of invention is achieved by application of three-component alloy film, which contains Group VIII metal (Co, **Ni**, **Pt**, etc.), IV-VI group metal (**Ti**, Ta, W), and either of B, C or N. Then, method involves heat processing under 500-1000.degree. in vacuum or N, NH3 or neutral gas, subsequent **selective etching** of alloy film from **dielec.** surface with minimal effect on films about contact winding. This results in self-aligned prodn. of not only contact silicide layer, but also diffusion barrier layer.

L14 ANSWER 23 OF 60 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1998:590633 CAPLUS

DOCUMENT NUMBER: 129:22490  
 TITLE: Method for imparting microscopic irregularities to the surface of a layer of semiconductor material in manufacturing a semiconductor device  
 INVENTOR(S): Kaeriyama, Toshiyuki  
 PATENT ASSIGNEE(S): Texas Instruments Inc., USA  
 SOURCE: U.S., 11 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5804034	A	19980908	US 1994-210964	19940321

PRIORITY APPLN. INFO.: US 1994-210964 19940321

AB A method for attaining a uniform roughening of a silicon semiconductor surface with a microscopic amt. of roughness at the .ANG. level, wherein the amt. of roughness may be accurately and precisely controlled without complicating the manufg. processes and increasing the manufg. cost, and regardless of the shape of the silicon surface area of the substrate. The substrate with the silicon surface area is immersed in a cleansing soln., such as SCl for example, contg. a metallic substance, such as **Fe**, **Ni**, Cu, Zn, Al, and Cr, for example, at the ppb level to wash the surface. Then, a silicon **oxide** film uniformly contg. the metallic substance is formed on the silicon surface of the substrate after drying, and isotropic **etching** is performed on the surface of the substrate formed with the silicon **oxide** film by **etching** Si from the silicon **oxide** film at a high ratio of **selectivity** to form microscopic irregularities. This procedure increases the effective surface area of the silicon surface in a highly precise manner and can be employed in making trench type or stack type DRAM memory cell structures.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 24 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:100293 CAPLUS  
 DOCUMENT NUMBER: 130:185323  
 TITLE: Observation of 3-dimensional morphology of the subscale formed in **Fe-Ni** alloys oxidized at high temperature by an organic solvent system dissolution technique

AUTHOR(S): Kusabiraki, Kiyoshi; Nakao, Yukimichi; Sakuradani, Ken; Saji, Shigeoki  
 CORPORATE SOURCE: Dep. Intelligent Information Engineering, Faculty Engineering, Toyama University, Toyama, 930-8555, Japan  
 SOURCE: Nippon Kinzoku Gakkaishi (1998), 62(12), 1151-1156  
 CODEN: NIKGAV; ISSN: 0021-4876  
 PUBLISHER: Nippon Kinzoku Gakkai  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Japanese

AB **Fe-Ni** base alloys form a subscale in the alloy interior by **selective** oxidn. of the elements having a large affinity for O<sub>2</sub> together with the external scale formation on the alloy surface by high-temp. oxidn. Almost of all the previous papers concerning the subscale which consists of both intergranular and intragranular **oxides** have been on the basis of the 2-dimensional observation of the cross-sections of oxidized specimens. However, it is difficult to est. exactly the three-dimensional morphol. development of the subscale because its morphol. is peculiar. To examine directly the three-dimensional morphol. we have developed a metal matrix dissoln. technique for the oxidized **Fe-Ni** alloy without dissolving the metallic **oxide** phases constituting the subscale by using an org. solvent system soln. In the present study, we report

here on the appropriate dissoln. of the Fe-36%Ni alloy oxidized in air at high temps. under the applied tensile stress conditions in the org. solvent system soln. which consists of Br<sub>2</sub>, tetra-Et ammonium, and acetonitrile. The three-dimensional morphol. of the intergranular and intragranular **oxides** formed in the Fe-36% Ni alloy suggests a difference in each growth mechanism.

L14 ANSWER 25 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1998:763860 CAPLUS  
DOCUMENT NUMBER: 130:103368  
TITLE: Influence of metal impurities on lifetime  
AUTHOR(S): Miyazaki, Morimasa  
CORPORATE SOURCE: Silicon technology R&D center, Sumitomo Sitix Corporation, Saga, 849-05, Japan  
SOURCE: ASTM Special Technical Publication (1998), STP 1340(Recombination Lifetime Measurements in Silicon), 294-304  
CODEN: ASTTA8; ISSN: 0066-0558  
PUBLISHER: ASTM  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Influence of **Fe**, **Ni** and Cu contamination on lifetime in Si wafers was studied by microwave photoconductive decay (.mu. -PCD), surface photovoltage (SPV) and MOS C-t methods. Lifetime degrading was detected by measurement of bulk trap density using deep level transient spectroscopy (DLTS) and observation of surface defects after **selective etching** by optical microscope. As Fe concentration in the bulk increased, recombination lifetime measured by .mu. -PCD and SPV method decreased but generation lifetime measured by MOS C-t method depended on the type of contamination. Fe-B pairs in p-type samples and interstitial Fe in n-type samples seem to shorten the recombination lifetime. Surface defects induced by **Ni** contamination shortened lifetime measured by .mu. -PCD method, but when measured by SPV method, which measure deeper into the bulk, this lifetime did not change. Also, in the **Ni** contaminated samples, lifetime measured by MOS C-t method was shortened. MOS C-t method therefore, seems to be sensitive to bulk state near interface of Si/SiO<sub>2</sub>. As Cu concentration was increased, both the recombination lifetimes measured in n-type samples shortened and those in p-type samples did not change. It is postulated that Cu-related impurities in n-type samples are electrically active and those in p-type samples are inactive. No surface defects induced by Cu were observed in either case. The defects were, however visible after removal of Al electrode and gate **oxide** layer of MOS capacitors. The defects caused by Cu contamination as well as those caused by **Ni** contamination remarkably shorten lifetime measured by MOS C-t.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 26 OF 60 INSPEC COPYRIGHT 2003 IEE  
ACCESSION NUMBER: 1999:6167814 INSPEC  
DOCUMENT NUMBER: A1999-06-8160B-078; B1999-03-3110C-016  
TITLE: Dry and wet **etch** processes for NiMnSb, LaCaMnO<sub>3</sub> and related materials.  
AUTHOR: Hong, J.; Wang, J.J.; Lambers, E.S.; Caballero, J.A.; Childress, J.R.; Pearton, S.J. (Dept. of Mater. Sci. & Eng., Florida Univ., Gainesville, FL, USA); Dahmen, K.H.; von Molnar, S.; Cadieu, F.J.; Sharifi, F.  
SOURCE: Science and Technology of Magnetic Oxides Symposium  
Editor(s): Hundley, M.F.; Nickel, J.H.; Ramesh, R.; Tokura, Y.  
Warrendale, PA, USA: Mater. Res. Soc, 1998. p.3-8 of xiii+360 pp. 12 refs.  
Conference: Boston, MA, USA, 1-4 Dec 1997  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Experimental  
COUNTRY: United States  
LANGUAGE: English

AB A variety of plasma **etching** chemistries were examined for patterning NiMnSb Heusler thin films and associated Al<sub>2</sub>O<sub>3</sub> barrier layers. Chemistries based on SF<sub>6</sub> and Cl<sub>2</sub> were all found to provide faster **etch** rates than pure Ar sputtering. In all cases the **etch** rates were strongly dependent on both the ion flux and ion energy. **Selectivities** of  $\geq 20$  for NiMnSb over Al<sub>2</sub>O<sub>3</sub> were obtained in SF<sub>6</sub>-based discharges, while **selectivities**  $\leq 5$  were typical in Cl<sub>2</sub> and CH<sub>4</sub>/H<sub>2</sub> plasma chemistries. Wet **etch** solutions of HF/H<sub>2</sub>O and HNO<sub>3</sub>/H<sub>2</sub>SO<sub>4</sub>/H<sub>2</sub>O were found to provide reaction-limited **etching** of NiMnSb that was either non-**selective** or **selective**, respectively, to Al<sub>2</sub>O<sub>3</sub>. In addition we have developed dry **etch** processes based on Cl<sub>2</sub>/Ar at high ion densities for patterning of LaCaMnO<sub>3</sub> (and SmCo permanent magnet biasing films) for magnetic sensor devices. Highly anisotropic features are produced in both materials, with smooth surface morphologies. In all cases, SiO<sub>2</sub> or other **dielectric** materials must be used for masking since photoresist does not retain its geometrical integrity upon exposure to the high ion density plasma.

L14 ANSWER 27 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:587846 CAPLUS

DOCUMENT NUMBER: 127:256447

TITLE: Liquid for **selective** peeling off of **nickel (alloy)** from copper or tin alloy composite material

INVENTOR(S): Ohira, Takemasa; Hatanaka, Tatsuhiko

PATENT ASSIGNEE(S): Ebara UdyLite K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09228075	A2	19970902	JP 1996-61634	19960226
PRIORITY APPLN. INFO.:			JP 1996-61634	19960226

AB **Nickel (alloy)** is peeled off from composite material without peeling Cu (alloy) or Sn (alloy) parts off or without damaging org. resist on the material. The liq. may contain a halogen-free (in)org. acid, an oxidizing agent, an arom. nitro compd., and a metal dissoln. inhibitor. An electronic circuit is manufd. by a process including following successive steps; (1) forming the 1st circuit pattern on a Cu-clad elec. **insulator** substrate by using an org. resist, (2) plating the surface by **Ni**, (3) forming the 2nd circuit pattern on the **Ni** surface by using org. resist, (4) plating the surface by Sn-Pb alloy, (5) removing exposed Cu parts by **etching**, and (6) impregnating with the claimed liq. to remove the **Ni** film. Electronic parts or circuits are similarly manufd. on Cu (alloy) frames.

L14 ANSWER 28 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:482402 CAPLUS

DOCUMENT NUMBER: 127:228677

TITLE: Use of laser reflectometry for end-point detection during the **etching** of magnetic thin films

AUTHOR(S): Khamsehpour, B.; Wilkinson, C. D. W.; Chapman, J. N.

CORPORATE SOURCE: Department of Physics and Astronomy, University of Glasgow, Glasgow, G12 8QQ, UK

SOURCE: Journal of Vacuum Science & Technology, A: Vacuum, Surfaces, and Films (1997), 15(4), 2069-2073  
CODEN: JVTAD6; ISSN: 0734-2101

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Laser reflectometry at a wavelength of 679 nm has been employed for monitoring and detection of the end point during the **etching** of thin films of magnetic materials. Oscillations in the detected reflected

signal due to the periodicity of multilayer structures for Pt/Co and Cu/Co with periods as small as 3 nm have been recorded. Known details of the structures have been used to model the normal incidence reflectance to compare with the obsd. results. This technique allows the **etching** to be **stopped** after removal of the thin magnetic multilayer film to an accuracy of better than 5 nm in the cases cited.

L14 ANSWER 29 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:651768 CAPLUS  
DOCUMENT NUMBER: 125:314855  
TITLE: Ultramicro fabrication on **Fe-Ni** alloys using electron-beam writing and reactive-ion **etching**  
AUTHOR(S): Nakatani, Isao  
CORPORATE SOURCE: Natl. Res. Inst. Metals, Tsukuba, 305, Japan  
SOURCE: IEEE Transactions on Magnetism (1996), 32(5, Pt. 2), 4448-4451  
CODEN: IEMGAQ; ISSN: 0018-9464  
PUBLISHER: Institute of Electrical and Electronics Engineers  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A novel reactive-ion-**etching** (RIE) method useful for ferromagnetic material of **permalloy** (80%Ni-4.5%Mo-Fe) was developed. This method involves radiofrequency plasma of a gas mixt. NH<sub>3</sub>-CO aimed at the formation of volatile transition metal carbonyls. A max. **etching** rate of 35nm/min and highly anisotropic **etching** was obtained. The **etching selectivity** ratios of **permalloy** to SiO<sub>2</sub> or Si were .apprx.10 or 4, resp. High-resoln. electron-beam writing was followed by the RIE process on the **permalloy** films. To achieve high-resoln. electron-beam writing, amorphous carbon film was placed between the resist layer and SiO<sub>2</sub> film overlaid on the **permalloy** film. By this method, nanostructures of **permalloy** stripes of 200nm lines and 300nm spaces with clear-cut features were fabricated.

L14 ANSWER 30 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:436125 CAPLUS  
DOCUMENT NUMBER: 122:254090  
TITLE: Manufacture of dynamic random-access memory semiconductor device involving surface-roughening of silicon substrate  
INVENTOR(S): Kaeryama, Toshuki  
PATENT ASSIGNEE(S): Texas Instruments Japan, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07007000	A2	19950110	JP 1993-85732	19930320
JP 3336415	B2	20021021		

PRIORITY APPLN. INFO.: JP 1993-85732 19930320

AB The process involves the following steps: (1) washing a substrate carrying a Si film with a metal-contg. soln., (2) drying to form a Si **oxide** film contg. the metal, and (3) **selectively etching** the **oxide** film. The metal substance may be **Fe, Ni**, Cu, Zn, Al, and/or Cr. Surface-roughening of the substrate is precisely controlled.

L14 ANSWER 31 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:347314 CAPLUS  
DOCUMENT NUMBER: 122:121120  
TITLE: Thin film multilayer circuit and its manufacture  
INVENTOR(S): Matsuzaki, Eiichi; Ikeda, Seiji; Akamatsu, Shiro;

PATENT ASSIGNEE(S): Sakurai, Akiko; Matsuyama, Haruhiko  
SOURCE: Hitachi Ltd, Japan  
Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06310857	A2	19941104	JP 1993-99013	19930426

PRIORITY APPLN. INFO.: JP 1993-99013 19930426

AB In the title circuit, a via-hole is filled with via-multilayers, of which cross section is stairslike, i.e., the cross section area of the upper via-layer is smaller than that of the lower via-layer. The via-hole layers may consist of a material having **etching selectivity**, or .gtoreq.1 of the via-hole layer may consist of Cu or Al. A barrier layer may exist on at least one of the via-hole layers to prevent the via-hole layers from diffusing each other. The barrier layer may consist of Cr, **Ti**, TiW, W, Ta, TaNx, Mo, Hf, Nb, **Ni**, NiWx or **Ni**-Cr. The via-holes on the through-hole of a ceramic substrate, or an **insulator** film of polyimide. The manuf. method of the via-hole layers is also claimed.

L14 ANSWER 32 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1994:497851 CAPLUS  
DOCUMENT NUMBER: 121:97851  
TITLE: Manufacture of copper-laminated printed circuit board  
INVENTOR(S): Kamyama, Koji; Takagi, Akyoshi  
PATENT ASSIGNEE(S): Hitachi Chemical Co Ltd, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06069634	A2	19940311	JP 1992-217807	19920817

PRIORITY APPLN. INFO.: JP 1992-217807 19920817

AB The circuit board is manufd. by bonding a Cu foil having a metal layer which has a different **etching** rate from that of Cu with a resin, opening a hole, electroless plating inner wall of the hole and the whole surface of the Cu foil with Cu, forming a resist, **etching** Cu to remove other than patterns, forming a resist, electroplating with Au or Au-**Ni**, removing the resist, and removing the exposed Cu and the metal layer. The circuit board was obtained using a Cu **oxide** as a metal layer with different **etching** rate.

L14 ANSWER 33 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1994:448292 CAPLUS  
DOCUMENT NUMBER: 121:48292  
TITLE: Manufacture of semiconductor device having gold-including circuit characterized by metal coating process  
INVENTOR(S): Mikagi, Iku  
PATENT ASSIGNEE(S): Nippon Electric Co, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 06045283 A2 19940218 JP 1992-199325 19920727  
PRIORITY APPLN. INFO.: JP 1992-199325 19920727

AB The title device is manufd. by a process including following successive steps; (1) forming the 1st elec. conductive single or multilayer film on the 1st elec. **insulator** film on a substrate, (2) forming the 2nd conductive film on the 1st conductive film, (3) **selectively** forming a mask film on the 2nd conductive film, (4) electro(less) coating the 1st Au film on the exposed 2nd conductive film, (5) electro(less) coating through the mask to form the 2nd metal film **selectively** on the 1st coated metal film, (6) removing the mask, (7) removing the exposed region of the 2nd conductor film, and (8) removing the exposed region of the 1st conductive film to create a circuit comprising the 1st conductive layer, the 2nd conductive layer, the 1st metal-coated layer, and the 2nd metal-coated layer. The circuit shows improved interlayer adhesion.

L14 ANSWER 34 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:196364 CAPLUS

DOCUMENT NUMBER: 118:196364

TITLE: **Selective** electroless coating process for metal conductors on **dielectric** substrates

INVENTOR(S): Lin, Charles W. C.; Yee, Ian Y. K.

PATENT ASSIGNEE(S): Microelectronics and Computer Technology Corp., USA

SOURCE: U.S., 6 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5167992	A	19921201	US 1991-667778	19910311

PRIORITY APPLN. INFO.: US 1991-667778 19910311

AB The **dielec.** parts with a metal conductor are dipped sequentially into an activator bath for the metal, dipped into an acid soln. to deactivate the **dielec.** substrate, and dipped into an electroless bath for local coating with a metal. The process is suitable for local metal or alloy coating of integrated elec.-circuit parts having a polymer or ceramic substrate. The parts having a C film or residue on the **dielec.** surface are pretreated to remove the film, esp. by an oxidizing **etch** or plasma. The deactivation solns. remove residual Pd, Au, or **Pt** left from the activator soln., and consist of acids in aq., alc., or org. solvents. The finished elec.-circuit parts are free of short-circuit defects assocd. with coating metal residue on the **dielec.** substrate. The process can be applied to **selectively** coat with **Ni** the Cu-conductor layer on a polyimide substrate, using the processing stages with plasma cleaning, 1st acid bath for cleaning, activation of Cu in acidic Pd chloride, 2nd acid bath for deactivation of polymer, and the coating with **Ni** in com. electroless bath.

L14 ANSWER 35 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:522764 CAPLUS

DOCUMENT NUMBER: 117:122764

TITLE: Processes for electrically conductive decals filled with organic **insulator** material

INVENTOR(S): Kordus, Mark R.; Schneider, Mark S.; Wirtz, Louis H.

PATENT ASSIGNEE(S): International Business Machines Corp., USA

SOURCE: U.S., 13 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5116459	A	19920526	US 1991-665497	19910306

PRIORITY APPLN. INFO.: US 1991-665497 19910306

AB The present invention relates generally to new processes for making decals, and more particularly to elec. conductive decals that are filled with org. **insulator** material. Various methods and processes that are used to make these elec. conductive decals filled with org. **dielec.** materials are disclosed.

L14 ANSWER 36 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:438256 CAPLUS

DOCUMENT NUMBER: 117:38256

TITLE: Processes for making electrically conductive decals filled with inorganic **insulator** materials

INVENTOR(S): Schneider, Mark S.; Acocella, John; Herron, Lester W.; Kordus, Mark R.; Wirtz, Louis H.

PATENT ASSIGNEE(S): International Business Machines Corp., USA

SOURCE: U.S., 13 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5108541	A	19920428	US 1991-665633	19910306
JP 05110229	A2	19930430	JP 1992-30559	19920218
JP 07036468	B4	19950419		

PRIORITY APPLN. INFO.: US 1991-665633 19910306

AB New processes for making decals, particularly elec. conductive decals filled with inorg. **insulator** materials for connections, are disclosed.

L14 ANSWER 37 OF 60 INSPEC COPYRIGHT 2003 IEE

ACCESSION NUMBER: 1993:4547879 INSPEC

DOCUMENT NUMBER: B9401-3120B-033

TITLE: **Selective** wet chemical **etching** of the coil seed-layer in TFH fabrication.

AUTHOR: Cohen, U.

SOURCE: Proceedings of the Second International Symposium on Magnetic Materials, Processes, and Devices  
Editor(s): Romankiw, L.T.; Herman, D.A., Jr.  
Pennington, NJ, USA: Electrochem. Soc, 1992. p.217-21 of xii+449 pp. 2 refs.  
Conference: Phoenix, AZ, USA, 14-18 Oct 1991

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Practical

COUNTRY: United States

LANGUAGE: English

AB Using a chemically distinct seed-layer (or plating-base) from the electroplated coil metal and an appropriate **selective etchant**, the seed-layer is **selectively** removed from between the individual coil turns while leaving the coil, **insulation**, and gap materials essentially intact. A suitable combination includes **nickel-iron (Permalloy)** seed-layer, copper coil, and a **selective etchant** based on nitric and phosphoric acids diluted in water. The process benefits include consistent and reproducible coil resistance and dimensions, improved reliability (corrosion resistance), simplicity, higher throughput and yields, lower cost, and elimination of gap-wedge and zero-throat recession.

L14 ANSWER 38 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:119552 CAPLUS

DOCUMENT NUMBER: 116:119552



TITLE: **Selective** chemical removal of the coil seed layer in thin-film magnetic transducer head manufacture

INVENTOR(S): Cohen, Uri; Hsie, Wei C.

PATENT ASSIGNEE(S): Seagate Technology, USA

SOURCE: U.S., 10 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5059278	A	19911022	US 1990-590007	19900928
PRIORITY APPLN. INFO.:			US 1990-590007	19900928

AB The seed layer or metalization layer used to form the coil winding in a thin-film magnetic recording head by electrodeposition, is removed from between individual winding turns by **selective etching** with an **etchant** which preferentially attacks the seed layer while leaving the coil winding, **insulation**, and gap materials intact. A suitable combination of materials for the seed layer, coil winding, and **etchant** is **Ni-Fe Permalloy**, Cu, and HNO<sub>3</sub>-H<sub>3</sub>PO<sub>3</sub>-H<sub>2</sub>O, resp.

L14 ANSWER 39 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:240298 CAPLUS

DOCUMENT NUMBER: 116:240298

TITLE: Manufacture of chromium-copper-**iron alloy** sheets for integrated circuit lead frames

INVENTOR(S): Nishimura, Satoru; Ejima, Mizuo

PATENT ASSIGNEE(S): Nippon Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03223451	A2	19911002	JP 1989-175664	19890710
PRIORITY APPLN. INFO.:			JP 1989-145279	19890609

AB A Cr-Cu-Fe alloy contg. 20-95% Cu and 6-12% (with respect to Fe) Cr is cast at surface cooling rate .gtoreq.100.degree./s, pickled to remove the **oxide** film and **selectively etched**, cold rolled at .gtoreq.50% draft, annealed, aged, cold rolled at 5-50% draft, and optionally plated with Cu. The alloy optionally contains Al, **Ti**, **Ni**, Nb, Zr, P, La, Ce, Y, Mn, V, Ca, Be, Mg, and/or W .ltoreq.0.5%, Zn and/or Si .ltoreq.1%, and Sn .ltoreq.4%. The resulting sheets have good balance of strength, elec. cond, and thermal emissivity.

L14 ANSWER 40 OF 60 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 1

ACCESSION NUMBER: 1991:571819 CAPLUS

DOCUMENT NUMBER: 115:171819

TITLE: Thick **selective** electroless-plated cobalt-**nickel alloy** contacts to cobalt disilicide. I. Material properties

AUTHOR(S): Georgiou, G. E.; Baiocchi, F. A.; Luftman, H. S.; Sheng, T. T.; Vasile, M. J.; Knoell, R. V.

CORPORATE SOURCE: AT and T Bell Lab., Murray Hill, NJ, 07974, USA

SOURCE: Journal of the Electrochemical Society (1991), 138(7), 2061-9  
CODEN: JESOAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Thick (.gtoreq.1 .mu.m) **selective** electroless plating of Co, Ni, and their alloys is used to provide 'plug' contacts to shallow junctions below CoSi2. After a brief discussion of the electroless plating procedure and material characteristics, plating uniformity relating to substrate doping and window definition by reactive ion **etching** is discussed. Optical and SEM correlates the plating uniformity with the reactive ion **etch** chemistries used to pattern windows in a deposited **dielec.** to CoSi2. The plating yield is poor when only a brief dil. HF pretreatment is used to remove residues remaining on CoSi2 after a CHF3/CO2 reactive ion overetch. Appropriate pretreatment is suggested after detg. the chem. nature of the modified CoSi2 surface with x-ray photoemission spectroscopy. The thermal stability is discussed of the Al/Co-Ni/CoSi2/Si metalization for various hydrogen anneal cycles up to 450.degree.. The Co-Ni plug metalization can be annealed at .apprxeq.400.degree. without any Co/CoSi2/Si interaction. A Co-W alloy extends the thermal stability to .apprxeq.450.degree.. Al/Co interact at .gtorsim.400.degree.. Data are derived from RBS and AES and cross-sectional TEM and SEM. The data indicate that an appropriate low-stress electroless plated alloy, deposited on a properly pretreated surface, provides a good plug process for multilevel metalization of shallow junctions.

L14 ANSWER 41 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:450614 CAPLUS

DOCUMENT NUMBER: 113:50614

TITLE: **Selective** chemically assisted ion beam **etching** of silicon, polysilicon, and silica using **nickel**-chromium masks and chlorine

AUTHOR(S): Xiao, Zhaohua; Nilsson, B.; Svedberg, P.  
CORPORATE SOURCE: Dep. Phys., Chalmers Univ. Technol., Goeteborg, S-412 96, Swed.

SOURCE: Journal of the Electrochemical Society (1990), 137(5), 1579-81

CODEN: JESOAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The **etching** of single-crystal silicon, CVD polysilicon, thermally grown silicon **oxides**, and Ni-Cr masks have been studied using a chem.-assisted ion beam **etching** (CAIBE) process. **Etch** rates were measured as functions of Cl2 gas flow rate, Ar+ ion beam energy, and beam c.d. **Selectivities** of Ni-Cr:Si, Ni-Cr:poly, and Ni-Cr:SiO2 of 1:10, 1:9, and 1:4 were detd. Vertical profiles were obtained down to at least 100 nm linewidths using CAIBE.

L14 ANSWER 42 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:507014 CAPLUS

DOCUMENT NUMBER: 111:107014

TITLE: Reactive ion **etching** of tin **oxide** in hydrogen

AUTHOR(S): Anon.

CORPORATE SOURCE: UK

SOURCE: Research Disclosure (1989), 301, 370  
CODEN: RSDSBB; ISSN: 0374-4353

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The **selective etching** is achieved of SnO2:F over Al2O3, SiO2, Ni-Fe, HF, Cr, Zr, Si, and Al by using a H2 plasma.

L14 ANSWER 43 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:177548 CAPLUS

DOCUMENT NUMBER: 110:177548

TITLE: **Selective** decarburizing of **iron** **alloys** and steels

PATENT ASSIGNEE(S): International Business Machines Corp., Swed.

SOURCE: Jpn. Kokai Tokyo Koho, 3 pp.

DOCUMENT TYPE:

CODEN: SRXXAF

LANGUAGE:

Patent

FAMILY ACC. NUM. COUNT: 1

Japanese

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63238214	A2	19881004	JP 1988-8608	19880120
SE 8701197	A	19880924	SE 1987-1197	19870323
SE 458929	B	19890522		
SE 458929	C	19890914		
EP 288661	A1	19881102	EP 1988-101093	19880126
EP 288661	B1	19910918		
R: DE, FR, GB				
US 4885043	A	19891205	US 1988-162719	19880301
PRIORITY APPLN. INFO.:			SE 1987-1197	19870323

AB The title materials are **selectively** decarburized by coating with TiN. Thus, a carburized Si steel sheet after heat treatment was electroplated with a Cu pattern for masking, plasma coated with TiN in vacuum, and then **etched** to remove the Cu pattern. A decarburized pattern was formed and showed high magnetic permeability.

L14 ANSWER 44 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:430195 CAPLUS

DOCUMENT NUMBER: 109:30195

TITLE: Lithographic technique using laser for fabrication of electronic components and the like

INVENTOR(S): Das, Shyam

PATENT ASSIGNEE(S): Digital Equipment Corp., USA

SOURCE: Eur. Pat. Appl., 8 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 256938	A2	19880224	EP 1987-401844	19870807
EP 256938	A3	19910227		
EP 256938	B1	19951004		
R: DE, FR, GB, NL				
JP 63134679	A2	19880607	JP 1987-198009	19870807
JP 07091661	B4	19951004		
CA 1279104	A1	19910115	CA 1987-543954	19870807
PRIORITY APPLN. INFO.:			US 1986-894784	19860808

AB A microlithog. process using a laser beam for **etching** comprises: depositing a reflective covering layer; patterning the covering layer to form a mask; providing a transparent liq. layer over the mask; and **etching** the workpiece through the mask by using a laser beam. Also, an **etch stop** layer of a reflective material is formed in the areas that are complementary to the pattern to be formed in the mask and under the layer of the material that is to be **etched**. The method is useful in fabricating such components as magnetic heads for magnetic storage devices for digital data processing or electronic circuits. Thus, a layer of alumina was **etched** by using a Au mask.

L14 ANSWER 45 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:80353 CAPLUS

DOCUMENT NUMBER: 108:80353

TITLE: **Etching** bath for removing **nickel** coatings from **nickel alloy** articles

INVENTOR(S): Shestakov, V. V.; Erokhina, R. N.; Kryuchkov, L. P.

PATENT ASSIGNEE(S): USSR

SOURCE: U.S.S.R. From: Otkrytiya, Izobret. 1987, (36), 136.  
CODEN: URXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Russian  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SU 1341244	A1	19870930	SU 1986-4056890	19860416
PRIORITY APPLN. INFO.:			SU 1986-4056890	19860416

AB Corrosion of a Ni-alloy substrate is prevented in aq.  
**etching** bath contg. HF 2.8-3.3 and CrO3 0.2-0.7 g/L with balance  
HNO3.

L14 ANSWER 46 OF 60 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 2  
ACCESSION NUMBER: 1987:643634 CAPLUS  
DOCUMENT NUMBER: 107:243634  
TITLE: Surface structure and catalytic activity of rapidly  
quenched amorphous iron based alloys. II. Effect of  
hydrochloric acid treatment  
AUTHOR(S): Kisfaludi, G.; Schay, Z.; Guczi, L.  
CORPORATE SOURCE: Inst. Isot., Hung. Acad. Sci., Budapest, H-1525, Hung.  
SOURCE: Applied Surface Science (1987), 29(3), 367-79  
CODEN: ASUSEE; ISSN: 0169-4332

DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The surface structure of Fe80B20 and Fe40Ni40B20 amorphous alloys in the  
as-received state and after HCl treatment was studied by XPS. The surface  
compn. and valence state are related to the catalytic activity and  
**selectivity** revealed in CO + H2 reaction. On the shiny side of  
the Fe80B20 sample, deep oxidn. took place due to the removal of the B  
**oxide** layer by HCl **etching**, while on the dull side the  
originally porous layer became smooth resulting in the formation of a  
compact **oxide** layer decreasing thereby the accessible metal  
sites. On the Fe40Ni40B20 alloy, after removing the prevailing B  
**oxide** and Fe **oxide** and Fe **oxide** layer, an  
increased no. of Ni and Fe sites was responsible for the  
enhanced catalytic activity. On pure Fe-B alloy, the catalytic activity  
considerably decreased whereas on Fe-Ni-B alloy not  
only a 6-fold activity increase was measured but the olefin  
**selectivity** was significantly diminished due to the H activating  
function of Ni.

L14 ANSWER 47 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1986:507109 CAPLUS  
DOCUMENT NUMBER: 105:107109  
TITLE: Thin-film pattern  
INVENTOR(S): Segawa, Mikio  
PATENT ASSIGNEE(S): Fujitsu Ltd., Japan  
SOURCE: Jpn. Tokkyo Koho, 4 pp.  
CODEN: JAXXAD  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60058570	B4	19851220	JP 1977-15147	19770215
JP 53100499	A2	19780901		
PRIORITY APPLN. INFO.:			JP 1977-15147	19770215

AB A thin-film pattern such as in a magnetic bubble memory device with major  
and minor loops is prepd. by forming a resist pattern by **etching**  
through a mask, removing the resist, and **selective**  
**etching**, followed by depositing **insulating** layer and 2nd  
and 3rd thin film materials. For example, Cu, Ni-Fe

alloy, and Mo can be fabricated into patterns by **selective etching** using H<sub>2</sub>SO<sub>4</sub> + HNO<sub>3</sub> + H<sub>2</sub>O, (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>4</sub> + H<sub>2</sub>O and HClO<sub>4</sub> solns.

L14 ANSWER 48 OF 60 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1985:36913 CAPLUS  
DOCUMENT NUMBER: 102:36913  
TITLE: Method for partially plating of liquid crystal display cell electrode plates  
PATENT ASSIGNEE(S): Suwa Seikosha Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 59113169	A2	19840629	JP 1982-224474	19821221

PRIORITY APPLN. INFO.: JP 1982-224474 19821221

AB Electrode plates for liq. crystal display panels are coated with a mol. orientation-controlling agent in patterns except for the lead terminals, and the terminals are then **selectively** plated by using the orientation-controlling agent coating as a mask. The method forms (at low cost) only on the lead terminals of liq. crystal panels a **Ni** base alloy base coating for solder metalizing. Thus, a soda-lime glass was passivated with SiO<sub>2</sub>, coated with a transparent In Sn **oxide** electrode, **etched** to form stripe pattern electrodes having lead terminals, offset printed with polyimide varnish, baked, sensitized in an aq. soln. contg. HCl and SnCl<sub>2</sub>, activated with PdCl<sub>2</sub>, and the lead terminals were electroless plated with a **Ni-P** alloy. The alloy-coated plate showed good solderability and the display device prepd. showed excellent reliability.

L14 ANSWER 49 OF 60 INSPEC COPYRIGHT 2003 IEE  
ACCESSION NUMBER: 1983:2116328 INSPEC  
DOCUMENT NUMBER: A83097191  
TITLE: **Selective** oxidation of Fe-30Ni alloy in a low-temperature range (433-473K).  
AUTHOR: Seo, M.; Sato, N. (Dept. of Engng. Sci., Hokkaido Univ., Sapporo, Japan)  
SOURCE: Oxidation of Metals (April 1983) vol.19, no.3-4, p.151-63. 12 refs.  
Price: CCCC 0030-770X/83/0400-0151\$03.00/0  
CODEN: OXMEAF ISSN: 0030-770X  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: United States  
LANGUAGE: English

AB Fe-30Ni alloy specimens were oxidized for 10-240 min at 433-473K in pure oxygen at a pressure of 1.33\*10<sup>4</sup> Pa. The thickness of **oxide** films was measured by a multiple-angle-of-incidence ellipsometer. The kinetics of film growth were found to obey a parabolic rate law. The depth-profiling of oxidized surfaces, performed with simultaneous use of Auger electron spectroscopy (AES) and argon-ion sputter-**etching** technique, reveals that iron component is **selectively** oxidized and an iron-depletion zone is formed in the underlying alloy. During surface oxidation of the alloy, the transport rate of iron component in the film is almost equal to the interdiffusion rate in the underlying alloy, indicating the establishment of a steady state. The values of the interdiffusion coefficient, D, of the underlying alloy estimated from the depth-composition profiles are more than 10 orders of magnitude as large as the values extrapolated from the lattice diffusion data of the corresponding alloy obtained at high temperature. The enormously large values of D may be explained in terms of the vacancy (monovacancy or divacancy)-enhanced lattice diffusion mechanism.

L14 ANSWER 50 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:209329 CAPLUS

DOCUMENT NUMBER: 96:209329

TITLE: **Selectively etchable** thin-film circuits.

INVENTOR(S): Bilz, Harald; Brode, Wolfgang; Goedicke, Klaus; Heisig, Ullrich; Henneberger, Juergen; Pfeil, Georg; Schiller, Siegfried; Schneider, Bernhard; Steinhauer, Ingo; Uffrecht, Martin

PATENT ASSIGNEE(S): Ger. Dem. Rep.

SOURCE: Ger. (East), 7 pp.

CODEN: GEXXA8

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 152583	Z	19811202	DD 1980-223284	19800813
DD 152583	B1	19871125		

PRIORITY APPLN. INFO.: DD 1980-223284 19800813

AB An economical method for fabricating thin-film circuits with easily bonded, soldered, or **etchable** conductor paths and pads consists of (1) depositing a Cr-Ni resistor layer, (2) depositing an Al conductor and bonding layer of thickness .gtoreq.1 .mu.m in the form of .gtoreq.5 sputtered layers which are deposited sep. with pauses <0.2 times the deposition times, (3) pausing after sputtering for a time greater than the total sputtering time, and (4) depositing an Fe-Ni layer .gtoreq.0.3 .mu. from .gtoreq.3 sputtered layers with a similar sputtering sequence as in (3). Thus, a glass substrate was coated with a Ni-Cr film from a plasma source, Al layers were sputtered at 10 s for each layer, a pause of 100 s was made, and Fe-Ni layers were sputtered to give a solderable layer.

L14 ANSWER 51 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1981:507285 CAPLUS

DOCUMENT NUMBER: 95:107285

TITLE: **Etching** agent and methods for **selective etching** of nickel

-iron thin layers in layer systems

INVENTOR(S): Lerm, Albrecht; Schreiber, Hans; Steinhauer, Ingo; Wiegand, Antje

PATENT ASSIGNEE(S): Ger. Dem. Rep.

SOURCE: Ger. (East), 6 pp.

CODEN: GEXXA8

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 146627	Z	19810218	DD 1979-215702	19790921

PRIORITY APPLN. INFO.: DD 1979-215702 19790921

AB A **selective etching** treatment for Ni-Fe alloy conductors for hybrid devices which also contain Al and Ni-Cr layers is achieved by dipping the masked structure in a dil. HCl aq. soln. for a few s, spraying with distd. H2O, drying, and then **etching** in a **selective** aq. acid **etching** bath of peroxides and a metal-org. ligand. Thus, a Ni-Cr, Al, and Ni-Fe layered structure on a glass substrate was masked, dipped for 5-10 s in 2% HCl, sprayed, dried, and **etched** at 300 nm/min in a bath of (NH4)2S2O8 10, EDTA 1, and H2SO4 2 vol.% with dissoln. only of the Ni-Fe unmasked layers.

L14 ANSWER 52 OF 60 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1980:628641 CAPLUS  
 DOCUMENT NUMBER: 93:228641  
 TITLE: Formation of a microscopic fine pattern  
 PATENT ASSIGNEE(S): Hitachi, Ltd., Japan  
 SOURCE: Neth. Appl., 10 pp.  
 CODEN: NAXXAN  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Dutch  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
NL 8000109	A	19800714	NL 1980-109	19800108
NL 180617	B	19861016		
NL 180617	C	19870316		
JP 55093225	A2	19800715	JP 1979-714	19790110
GB 2040498	A	19800828	GB 1980-513	19800108
GB 2040498	B2	19830505		
US 4288283	A	19810908	US 1980-110445	19800108
DE 3000746	A1	19800814	DE 1980-3000746	19800110
DE 3000746	C2	19850808		

PRIORITY APPLN. INFO.: JP 1979-714 19790110  
 AB A microscopically fine pattern is formed on the surface of a chem. inert film by the **selective dry etching** of a superimposed layer of **Permalloy** which is covered by a masking film selected from **Ti**, **Ta**, **Mo**, **Cr**, **W**, and **Ni**. The surface of the masking layer is anodized or chem. oxidized to a light absorbing film of **oxide** about 20 .mu. thick. The oxidized surface is covered with photoprotective fine pattern film and irradiated with UV light. The unprotected areas of masking layer and **oxide** are removed by plasma **etching** with CF4 gas, and the residual unprotected **Permalloy** by ionization. The final removal of the masking layer and **oxide** is carried out by the above **etching** process to give the desired microscopically fine pattern. Thus, a film of SiO2 coated with a **Permalloy** surface layer was overcoated with a layer of **Ti**, oxidized to a depth of 20 .mu., and covered with a layer of **Ti**, oxidized to a depth of 20 .mu., covered with a photoprotective film pattern, irradiated with UV light, the unprotected areas dry **etched** to the **Permalloy** surface, the exposed **Permalloy** removed by ionization, and the residual **Ti** and TiO2 by dry **etching**.

L14 ANSWER 53 OF 60 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1979:478110 CAPLUS  
 DOCUMENT NUMBER: 91:78110  
 TITLE: **Etchant** for nichrome thin film  
 INVENTOR(S): Fujitani, Shogo  
 PATENT ASSIGNEE(S): Ozawa, Toshichiro, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 54013432	A2	19790131	JP 1977-79260	19770701
JP 60043919	B4	19851001		

PRIORITY APPLN. INFO.: JP 1977-79260 19770701  
 AB **Etching** solns. contg. K3Fe(CN6), NaOH, NH3, and H2O are used to **selectively etch** Nichrome coating layers composed of Nichrome and Au, Ag, or Cu. Service life of the **etching** solns. is extended by replenishing the constituents. Thus, an **insulated** plate was coated with Nichrome 300, Cu 5000 .ANG. in sequence, and the Cu

coating was **etched** to form a pattern. Then, a resist pattern was formed on the surface of the coated plate. An **etching** soln. contg. K<sub>3</sub>Fe(CN)<sub>6</sub> 250, NaOH 120 g/L, and 28% aq. NH<sub>4</sub>OH 120 mL/L was used to **etch** the Nichrome [12605-70-8] coating at room temp. for .apprx.30 s. No defect was obsd. in the Cu pattern.

L14 ANSWER 54 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1978:96680 CAPLUS  
DOCUMENT NUMBER: 88:96680  
TITLE: Metalizing pattern by electroplating  
INVENTOR(S): Anderson, Ronald Lee; Castellani, Eugene Evans;  
McCaffrey, Patrick Michael; Romankiw, Lubomyr Taras  
PATENT ASSIGNEE(S): International Business Machines Corp., USA  
SOURCE: Ger. Offen., 13 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2720109	A1	19771222	DE 1977-2720109	19770505
FR 2354633	A1	19780106	FR 1977-14017	19770503
FR 2354633	B1	19781020		
JP 52151639	A2	19771216	JP 1977-54499	19770513

PRIORITY APPLN. INFO.: US 1976-692241 19760611

AB A procedure is described for obtaining a metalizing pattern by **selective** electroplating on a metal substrate of Cr, **Ti**, Ta, Nb, Hf, or Al. A thin, non-platable layer (**dielec.** material such as SiO<sub>2</sub>, Si<sub>3</sub>N<sub>4</sub>, Al<sub>2</sub>O<sub>3</sub>, SiO, organo-silicate or polymer) is applied and then a mask representating the neg. of the desired metalizing pattern is produced. The region of the nonplatable layer not covered by the mask is removed. The exposed region of the substrate is electroplated and then, if desired, the mask, the remaining region of the nonplatable layer, the region of the substrate not covered by the plating material and, if necessary, the adherent layer are removed. This region of the nonplatable layer not covered by the mask is removed by **etching**, in an atm. of trichlorotrifluoroethane (I) [26523-64-8] or I + O. The plating material is Au, Cu, **Ni**, **Ni-Fe**, **Pt**, Pd or an alloy of 1 or more of these metals with other metals suitable for plating. The mask is made from a radiation-sensitive lacquer.

L14 ANSWER 55 OF 60 INSPEC COPYRIGHT 2003 IEE

ACCESSION NUMBER: 1973:531249 INSPEC  
DOCUMENT NUMBER: A73044615  
TITLE: The effects of Al, Mn and Si additions on the high temperature oxidation and sealability of Fe-42 **Ni-6 Cr** sealing alloy.  
AUTHOR: Kuse, T.; Iwai, N.; Makuuchi, T. (Tokyo Shibaura Electric Co. Ltd., Kawasaki, Japan)  
SOURCE: Journal of the Japan Institute of Metals (March 1973) vol.37, no.3, p.272-7. 8 refs.  
CODEN: NIKGAV ISSN: 0021-4876  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: Japan  
LANGUAGE: Japanese

AB High temperature **oxide** films and sealability of Fe-42 **Ni** -6 Cr alloys containing Al, Mn and Si, which is used for soft glass sealing, have been investigated by means of microscope observation, kinetic study and X-ray microanalysis. In the case of Al addition, the alloy oxidized in wet hydrogen shows good adherence between metal and **oxide** film. The **oxide** film formed on the alloy surface consists of Cr<sub>2</sub>O<sub>3</sub> and (Fe,Mn)O.Cr<sub>2</sub>O<sub>3</sub> as in the case of the alloy to which Al was not added. The activation energy of the alloy changes at 1100 degrees C, amounting to 45 kcal/mol on the high temperature side and 11.6



kcal/mol on the low temperature side. It is shown that the Mn concentration tends to decrease at the boundary between the metal and the **oxide** film and the Si concentration is high at the boundary. Internal oxidation was observed in the Al-containing alloy which was oxidized in wet hydrogen. By **etching** in aqua regia, **etch** pits found. A Liesegang band of **etch** pits was observed in one case, and clustering of **etch** pits over a certain width in the other.

L14 ANSWER 56 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1971:81744 CAPLUS

DOCUMENT NUMBER: 74:81744

TITLE: Materials for use in a durable **selectively** semitransparent photomask

AUTHOR(S): Sinclair, W. Robert; Sullivan, Miles V.; Fastnacht, R. A.

CORPORATE SOURCE: Bell Teleph. Lab., Inc., Murray Hill, NJ, USA

SOURCE: Journal of the Electrochemical Society (1971), 118(2), 341-4

CODEN: JESQAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A group of metal **oxides** were examd. as possible candidates for use as semitransparent mask materials. All masks were prepd. by d.-c. reactive sputtering onto glass. The uv-visible spectra for the entire group of **oxide** films were recorded. The uv-visible spectra for the entire group of **oxide** films were recorded. The spectral characteristics desired for a photomask are (1) transmission of <1% in the region <404 nm (for masking), and (2) transmission of >30% at 589 nm (for the see-through characteristic). Those systems which satisfied the spectral requirements were: **oxides** of Fe, V, and **Ni**; **Fe oxide-Ni oxide**, and **Fe oxide-V oxide**. These materials were evaluated to assure **etchability** in solvents compatible with photoresist processing and resistance to abrasion. The **Fe oxide-V oxide** (10:90 mole %) is the most promising material.

L14 ANSWER 57 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1969:494235 CAPLUS

DOCUMENT NUMBER: 71:94235

TITLE: Failure examinations. Causes of failure of NiCr/**Ni** thermocouples

AUTHOR(S): Wilke-Doerfurt, Ursula

CORPORATE SOURCE: Vacuumschmelze G.m.b.H., Hanau, Fed. Rep. Ger.

SOURCE: Praktische Metallographie (1969), 6(8), 505-8

CODEN: PMTLA5; ISSN: 0032-678X

DOCUMENT TYPE: Journal

LANGUAGE: English/German

AB NiCr/**Ni** thermocouples are used up to 1100.degree.. The types of damage which frequently occur with these thermocouples are: oxidn., internal oxidn. and green rot, and S attack. In the absence of corrosive media (e.g. in annealing atm. or mounting material) and with sufficient O in the surroundings of the thermocouple, a normal surface oxidn. takes place, leading to a continuous redn. in the thickness of the metallic core. When only a slight change in chem. compn. takes place, the influence on the thermal emf. increases only slowly with time and temp. When the thermocouples are used in certain protective atms., or if the air supply is insufficient, it may happen that no protective **oxide** layer is formed. Internal **selective** oxidn. of certain less noble alloying elements, sometimes penetrating into the core of the wire, results. In the case of NiCr, e.g., pure Cr **oxide** is formed with a corresponding marked redn. in the Cr content of the surrounding matrix. This explains why the normally nonmagnetic alloy suddenly becomes magnetic after **selective** oxidn. of the Cr. This abnormal reaction is known as green rot. A low O pressure in the surroundings seems to be a necessary, but apparently not sufficient condition for this process. The preferential oxidn. of one alloying element is assocd. with

a very marked change in the chem. compn. of the remaining metal; this in turn affects the thermal emf. and leads to faulty readings. The repeatedly observed occurrence of brittleness in the **Ni** wire of thermocouples used at 600-800.degree. is usually due to attack by S from the mounting material or annealing atm. Light gray, rounded sulfide inclusions form like strings of beads on the grain boundaries, and those near the surface are usually oxidized. The network structure, revealed by **etching** of the regions into which the S has penetrated, is also typical of S attack in **Ni** and clearly demonstrates the intergranular damage. Only the affected grain boundaries are **etched**; the normal, clean microstructure, including the twins, does not become visible until the **etching** has been continued for much longer times. In case of doubt, the I azide process can be used as a test for S.

L14 ANSWER 58 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1967:513253 CAPLUS

DOCUMENT NUMBER: 67:113253

TITLE: Method of electrolytic **etching** metals using a gel electrolyte

INVENTOR(S): Jamieson, Jamie L.; Hyter, William H.; Cady, James R.; Larson, Rawley D.

PATENT ASSIGNEE(S): McDonnell Douglas Corp.

SOURCE: U.S., 8 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3337434		19670822	US	19640115

AB To shape cellular structures called metallic (particularly stainless steel) honeycomb, without deformation or mutilation, chem. **etching** is used. To avoid the many disadvantages of liquid **etchants**, semisolid acid **etchants** or gels are proposed. These hold in suspension an electrolyte such as an aq. acid soln. The gels are sufficiently rigid to retain their shape when placed in contact with the surface to be **etched**. The **etchant** will remove metal from the workpiece or the honeycomb core to form a reverse image of gel with which it has been in contact. Such a chem. **etching** operation can take place without requiring the masking of any part of the core being **etched**, but to insure against attack by the **etchant** of the core area not intended to be **etched**, the entire assembly is enveloped in a **dielec.** medium, such as kerosine. However, gel **etchants** are less effective compared with liquid **etchants** contg. a corresponding electrolyte. Gels are further restricted by the slow migration of reaction products away from the metal work face and into the gel. Gaseous reaction products also restrict gel performance and contribute to roughness of the resulting surfaces. By applying d.c. at low voltage across the assembly of gel and workpiece in a direction which makes the core anodic, the **etch** rate is greatly increased and reaction products are disposed of with greater facility. The **etch** rates are comparable to, or in excess of, those obtained with liquid **etchants**. The highly acidic media required for **etching** steel alloys present gel stability problems in the prepn. of acid-gel systems which retain a semirigid consistency and which are capable of removing metal by chem. action upon contact with a surface, particularly at ambient temp. Cellulose acetate (I) and CM-cellulose (II) are the most effective gelling agents. I requires considerably more time to gel, due to gradual hydrolysis, but it gives a firmer gel. These gels can be cast into a desired shape in a mold, and the cast slabs can be trimmed readily to a desired profile. I and II have the important property of being able to form semisolid gels with highly concd. acid solns., and the higher the concn., within limits, the greater the **etching** effectiveness.

Various liquid **etchants** can be incorporated into the gels. Both I and II have the ability to gel a wide variety of acids and salts, individually or mixed, over a wide concn. range. Aq. solns. can be employed in the form of HCl, HF, HNO<sub>3</sub>, H<sub>3</sub>PO<sub>4</sub>, H<sub>2</sub>SO<sub>4</sub>, and H<sub>3</sub>BO<sub>3</sub>; and salt solns. such as NiCl<sub>2</sub>, Na<sub>2</sub>SO<sub>4</sub>, NH<sub>4</sub>F, and FeSO<sub>4</sub>.(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>. Mixts. of these acids and mixts. of the acids and salts can be used. A typical formula is: I or II 24-36 g., HCl (20.degree. Baume) 12-96, HNO<sub>3</sub> (30.degree. Baume) 4-10, and H<sub>2</sub>O 70-100 ml. Most of the gels exhibit syneresis, which results in the exuding of a small amt. of liquid accompanied by shrinkage. The latter is significant because of the need to maintain accurate gel dimensions. The problem is alleviated by allowing the gel to age until syneresis **stops**, usually in .apprx.10 days. The amt. of shrinkage is predictable and allowance is made in the casting or trimming at the gel to a desired profile by using shrink-scale molds. Aside from syneresis, the gels are stable for relatively long periods. Shrinkage can be controlled by aging the gels in closed containers until syneresis is completed. Some gels can be stored for months and remain stable. The acid gels are effective for **etching** stainless steel alloys, such as AM350, 17-7PH, PH15-7MO, 302, 321, 4130, 4340; and for **Ni** alloys, **Ti**, and refractory metals such as Mo, Nb, and Ta.

L14 ANSWER 59 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1968:462821 CAPLUS  
DOCUMENT NUMBER: 69:62821  
TITLE: Preparation of microcircuit elements by the  
**selective etching** of multilayer thin  
films  
AUTHOR(S): Cornish, D. C.  
CORPORATE SOURCE: Brit. Sci. Inst. Res. Assoc., Chislehurst, UK  
SOURCE: Proceedings of the Joint IERE-IEE Conference on  
Application of Thin Films in Electronic Engineering  
(1967), Volume Date 1966 14/2 pp.  
CODEN: 19TDAI  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Present techniques for the prepn. of thin-film microcircuits are limited mainly to the evapn. of films through out-of-contact masks and to the individual photomech. processing of resistor and conductor layers. The technique described enables all the constituent films, including **dielec.** material, to be deposited during one pumpdown. The multilayers so formed are then photomech. **etched**, one film at a time, to produce the desired components. The problem of connections to capacitor top plates can be overcome by simple masking during the deposition stage. As the prepn. of the multilayers is completely divorced from the photomech. processing, they could be deposited by a jobbing evapn. contractor, enabling the subsequent manuf. of the microcircuits to be carried out with the min. of capital, equipment, and labor.

L14 ANSWER 60 OF 60 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1959:110866 CAPLUS  
DOCUMENT NUMBER: 53:110866  
ORIGINAL REFERENCE NO.: 53:19796h-i,19797a-b  
TITLE: Heat-resisting steels. XIII. Analysis of precipitates  
of 16-25-6 alloys by x-ray diffraction  
AUTHOR(S): Asano, Eiichiro  
SOURCE: Tetsu to Hagane (1957), 43, 1318-24  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB Pptd. particles were examd. by x-ray diffraction, electron microscopy, chem. analysis, and **selective etching** of both regular Timken 16-25-6 Cr-**Ni**-Mo alloys and a 16-25-6 alloy contg. **Ti**. Samples for x-ray diffraction and electron microscopy were extd. from aged specimens by electrolytic decompn. in 3% HCl. For x-ray diffraction 2 methods were used. One used the usual x-ray diffraction app. with photographic film. The other used a tester which measured the diffraction and intensity automatically with Geiger counters. Data were compared with known carbide crystallographic data. The pptd. particles in

Timken 16-25-6 alloy contained at least 2 carbides, M<sub>6</sub>C and (Fe,Cr)<sub>23</sub>C<sub>6</sub>. These particles were also analyzed chemically, and evidence for the presence of **nitrides** was found. The .sigma. phase was not found. The carbide M<sub>6</sub>C was observed microscopically by using **selective etching** reagents (NaOH, KMnO<sub>4</sub>, and Murakami's reagent). In the regular 16-25-6 alloy the pptd. particles were probably M<sub>6</sub>C, (Fe, Cr)<sub>23</sub>C<sub>6</sub>, and CrMoN<sub>2</sub>. In the 16-25-6 alloy contg. 1.3% **Ti** the intermetallic compd., M<sub>2</sub>Ti (perhaps Ni<sub>2</sub>Ti and Fe<sub>2</sub>Ti), was probably present along with the carbides, M<sub>6</sub>C and M<sub>23</sub>C<sub>6</sub>.